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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,617	02/27/2002	Masahiro Aoki	NITT.0068	8633

7590 01/25/2006

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EXAMINER

PHAN, HANH

ART UNIT	PAPER NUMBER
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2638

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/083,617	AOKI ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is responsive to the Amendment filed on 11/09/2005.
2. The indicated allowability of claims 12-18 is withdrawn in view of the newly discovered reference(s) to Yoshimura et al (US Patent No. 5,835,646). Rejections based on the newly cited reference(s) follow.

### ***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshimura et al (US Patent No. 5,835,646).

Regarding claim 13, referring to figures 1C-1D and 2B, Yoshimura teaches an optical receiver, comprising:

a light receiving element (i.e., photodiode PD, Fig. 1C) disposed on a first substrate;

Art Unit: 2638

a high-frequency line disposed on a second substrate (Fig. 1C) separated from the first semiconductor substrate; and

a traveling-wave optical modulator (Fig. 1C) in which an electrode used for detecting an electric output of the light receiving element is electrically connected to the high-frequency line, the electrode being included in the light receiving element (col. 7, lines 1-10).

Regarding claim 14, Yoshimura further teaches the first substrate is fixedly secured to the second substrate with an active layer side of the light receiving element disposed on the first substrate and a high-frequency line side of the second substrate facing each other (see Fig. 1D).

Regarding claim 15, Yoshimura further teaches the light receiving element has a plurality of light receiving areas that are disposed at predetermined intervals cyclically; and said optical receiver comprises a traveling-wave optical modulator to which an electrode used for detecting each electric output of the light receiving element is electrically connected, said each electric output being produced in each of the plurality of light receiving areas (Figs. 1C and 1D, col. 7, lines 1-10).

Regarding claim 16, Yoshimura further teaches a preamplifier circuit is disposed on the second substrate; and an input portion of the preamplifier circuit is electrically connected to the high-frequency line (see Figs. 10a-10d).

Regarding claim 17, Yoshimura further teaches a preamplifier circuit is disposed on the second substrate; and the preamplifier circuit uses a traveling-wave type input

mode, and an input portion of the preamplifier circuit is electrically connected to the high-frequency line (see Figs. 10a-10d).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirshekar-Syahkal et al (Pub. No.: US 2002/0109897 A1) in view of Yoshimura et al (US Patent No. 5,835,646).

Regarding claim 12, referring to Figures 2, 5 and 6, Mirshekar-Syahkal teaches an optical transmitter, comprising:

a semiconductor laser light source (i.e., laser light source 208, Fig. 2); and

a traveling-wave optical modulator (i.e., optical modulator 504, Figs. 5 and 6) for modulating output light of the semiconductor laser light source;

wherein the traveling-wave optical modulator (504, Figs. 5 and 6) comprises an external semiconductor modulator disposed on a first substrate (i.e., substrate 520, Figs. 5 and 6), the external semiconductor modulator (504) being capable of modulating output light of the semiconductor laser light source; and

a high-frequency line (i.e., a high frequency line 506, Figs. 5 and 6) disposed-on a second substrate (i.e., substrate 502, Figs. 5 and 6) separated from the first substrate

Art Unit: 2638

(i.e., substrate 520, Figs. 5 and 6); and in the traveling-wave optical modulator, a control electrode for the external semiconductor modulator, which is included in the external semiconductor modulator, is electrically connected to the high-frequency line (see pages 4 and 5, paragraphs [0038]-[0045]).

Mirshekar-Syahkal differs from claim 12 in that he fails to specifically teach the first substrate is fixedly secured to the second substrate with an active layer side of the external semiconductor modulator disposed on the first substrate and a high-frequency line side of the second substrate facing each other, and an optical receiver comprising a light receiving element disposed on a third substrate, a high-frequency line disposed on a fourth substrate separated from the first semiconductor substrate, and a traveling-wave optical modulator in which an electrode used for detecting an electric output of the light receiving element is electrically connected to the high-frequency line, the electrode being included in the light receiving element, wherein the third substrate is fixedly secured to the fourth substrate with an active layer side of the light receiving element disposed on the third substrate and a high-frequency line side of the fourth substrate facing each other. However Yoshimura in US Patent No. 5,835,646 teaches the first substrate is fixedly secured to the second substrate with an active layer side of the external semiconductor modulator disposed on the first substrate and a high-frequency line side of the second substrate facing each other, and an optical receiver comprising a light receiving element disposed on a third substrate, a high-frequency line disposed on a fourth substrate separated from the first semiconductor substrate, and a traveling-wave optical modulator in which an electrode used for detecting an electric output of the

Art Unit: 2638

light receiving element is electrically connected to the high-frequency line, the electrode being included in the light receiving element, wherein the third substrate is fixedly secured to the fourth substrate with an active layer side of the light receiving element disposed on the third substrate and a high-frequency line side of the fourth substrate facing each other (see Figures 1A-1D and 2A-2B, col. 7, lines 1-10). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the first substrate is fixedly secured to the second substrate with an active layer side of the external semiconductor modulator disposed on the first substrate and a high-frequency line side of the second substrate facing each other, and an optical receiver comprising a light receiving element disposed on a third substrate, a high-frequency line disposed on a fourth substrate separated from the first semiconductor substrate, and a traveling-wave optical modulator in which an electrode used for detecting an electric output of the light receiving element is electrically connected to the high-frequency line, the electrode being included in the light receiving element, wherein the third substrate is fixedly secured to the fourth substrate with an active layer side of the light receiving element disposed on the third substrate and a high-frequency line side of the fourth substrate facing each other as taught by Yoshimura in the system of Mirshekar-Syahkal. One of ordinary skill in the art would have been motivated to do this since Yoshimura suggests in column 7, lines 1-10 that using such the first substrate is fixedly secured to the second substrate with an active layer side of the external semiconductor modulator disposed on the first substrate and a high-frequency line side of the second substrate facing each other, and an optical receiver comprising a light

Art Unit: 2638

receiving element disposed on a third substrate, a high-frequency line disposed on a fourth substrate separated from the first semiconductor substrate, and a traveling-wave optical modulator in which an electrode used for detecting an electric output of the light receiving element is electrically connected to the high-frequency line, the electrode being included in the light receiving element, wherein the third substrate is fixedly secured to the fourth substrate with an active layer side of the light receiving element disposed on the third substrate and a high-frequency line side of the fourth substrate facing each other have advantage of allowing providing an optical communication system with high capacity and high speed and reducing the size, weight and cost of the device.

Regarding claim 18, the combination of Mirshekar-Syahkal and Yoshimura teaches the first substrate and the third substrate are common, and the second substrate and the fourth substrate are common (see Figs. 10a-10d).

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 12-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.



Art Unit: 2638

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**



3/11

FIG. 3A

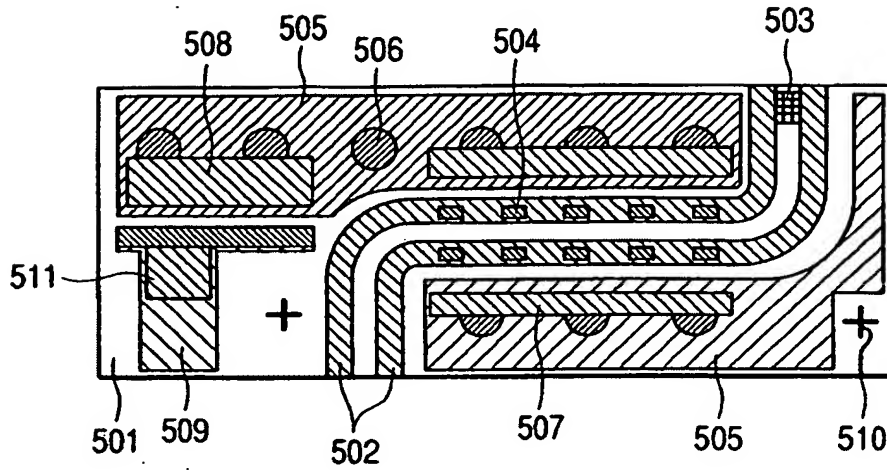


FIG. 3B

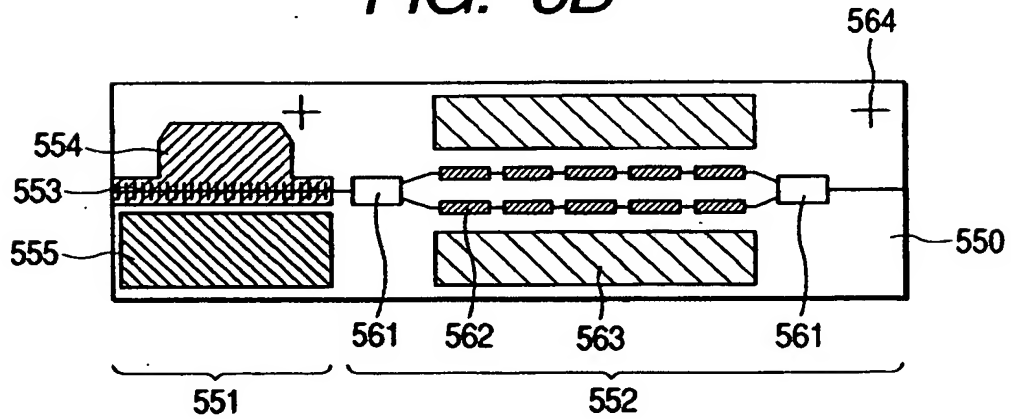
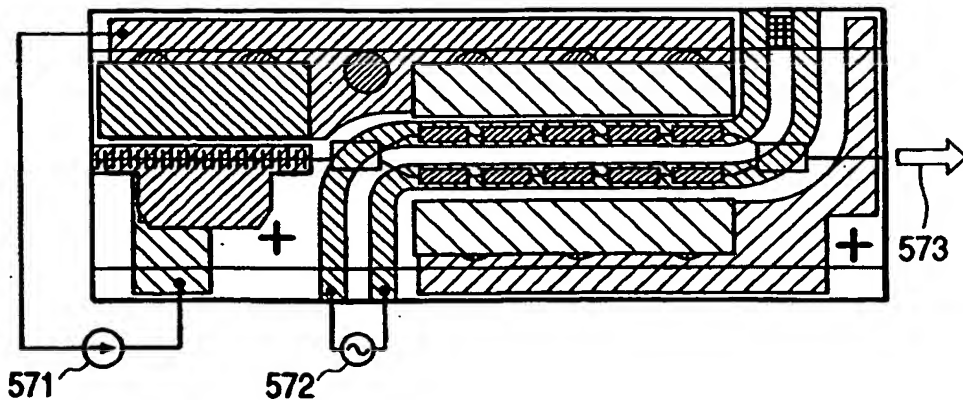


FIG. 3C





4/11

FIG. 4A

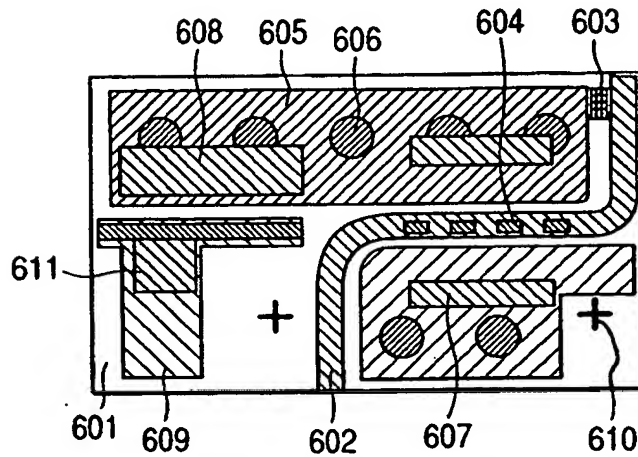


FIG. 4B

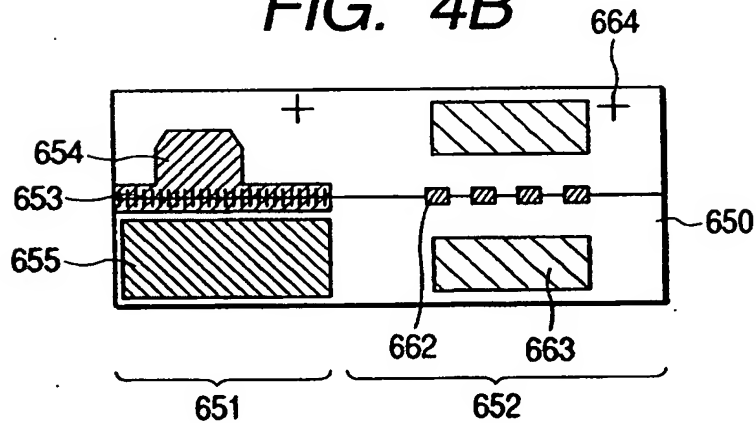
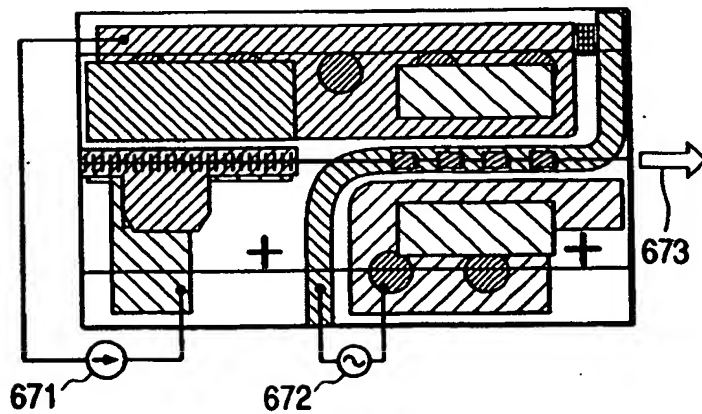


FIG. 4C





5/11

FIG. 5A

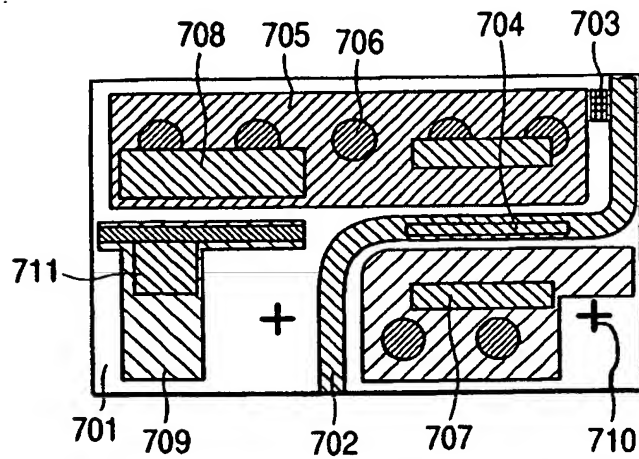


FIG. 5B

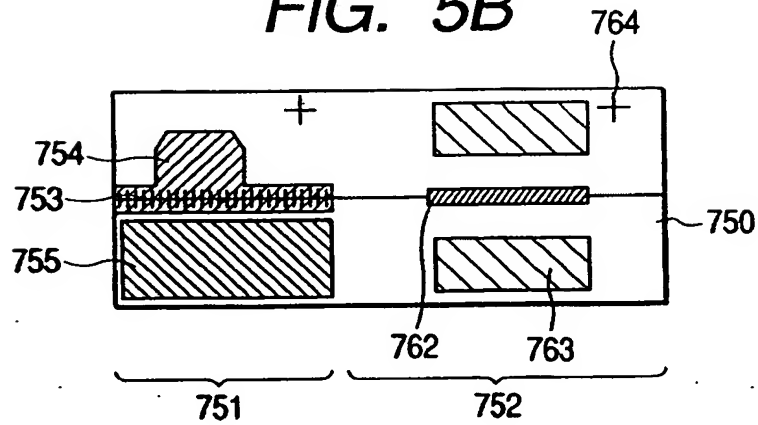
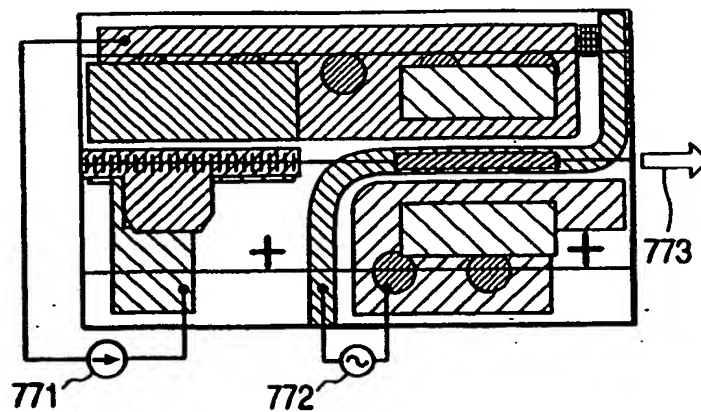


FIG. 5C





11/11

Approved  
01/12/06

FIG. 11

